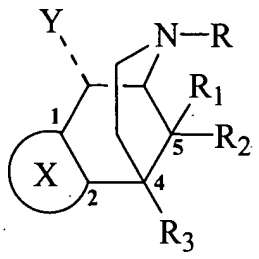
## Claims

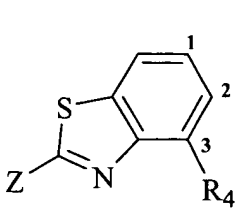
1. A compound of formula I:



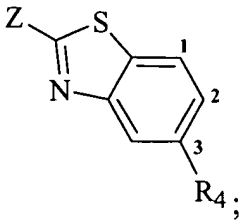
(I)

or a pharmaceutically acceptable salt thereof, wherein

X includes the carbon atoms at positions 1 and 2 and is selected from



and



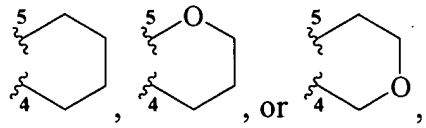
;

Y is H, oxo, or methyl;

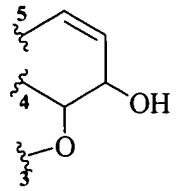
R is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl;

$R_1$ is selected from H and $CH_3$;

$R_4$ is H and $R_2$ and $R_3$ are each, independently, H, $C_{1-7}$ alkyl, or $R_2$ and $R_3$ combine to form a fused six-membered ring in which position 4 is connected to position 5 by



or $R_4$ combines with $R_2$ and $R_3$ to form a fused ring system in which position 3, 4, and 5 are connected by

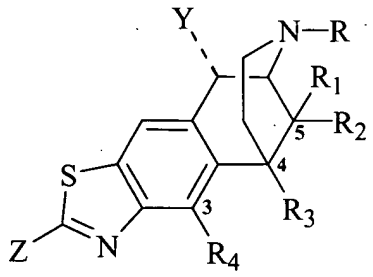


;

Z is selected from $-NHR_5$ and $-N(R_6)_2$;

$R_5$ is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, $C_{1-7}$ heteroalkyl, acyl, and fatty acid acyl; and each $R_6$ is, independently, selected from $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl.

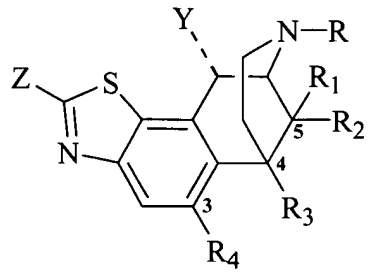
2. The compound of claim 1, wherein said compound is described by formula Ia:



(Ia)

wherein Y, R, $R_1$, $R_2$, $R_3$, $R_4$, and Z are defined as in claim 1.

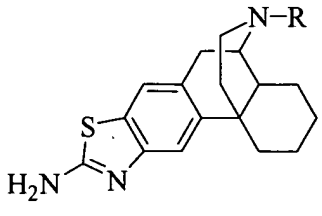
3. The compound of claim 1, wherein said compound is described by formula Ib:



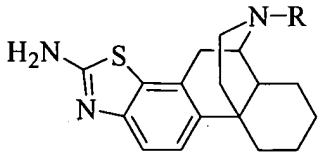
(Ib)

wherein Y, R, $R_1$, $R_2$, $R_3$, $R_4$, and Z are defined as in claim 1.

4. The compound of claim 1, wherein said compound is described by formulas II or III:



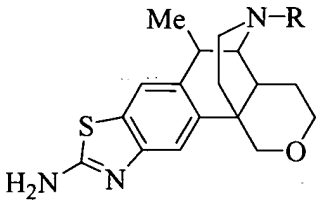

(II)



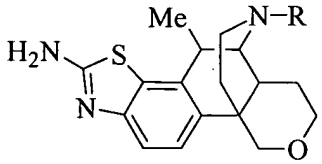

(III)

or a pharmaceutically acceptable salt thereof, wherein R is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl.

5. The compound of claim 1, wherein said compound is described by formulas IV or V:



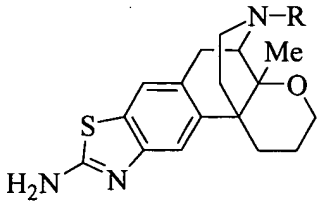

(IV)

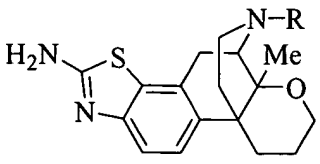



(V)

or a pharmaceutically acceptable salt thereof, wherein R is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl.

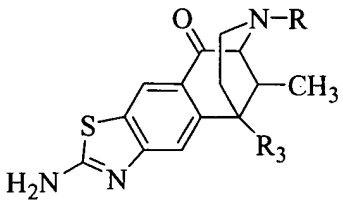
6. The compound of claim 1, wherein said compound is described by formulas VI or VII:


(VI)


(VII)

or a pharmaceutically acceptable salt thereof, wherein R is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl.

7. The compound of claim 1, wherein said compound is described by formula VIII:

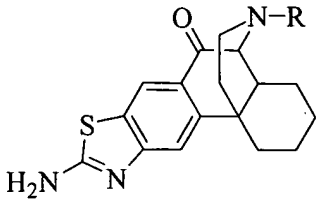

(VIII)

or a pharmaceutically acceptable salt thereof, wherein

R is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl; and

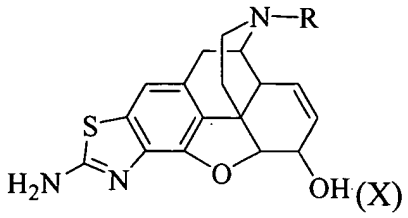
$R_3$ is $CH_3$ or $CH_2CH_3$.

8. The compound of claim 1, wherein said compound is described by formula IX:


(IX)

or a pharmaceutically acceptable salt thereof, wherein R is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl.

9. The compound of claim 1, wherein said compound is described by formula X:

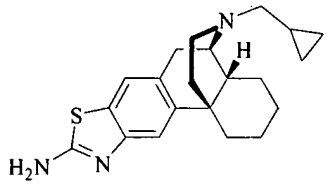


(X)

or a pharmaceutically acceptable salt thereof, wherein R is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl.

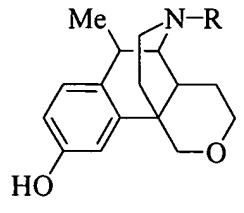
10. The compound of any of claims 4-9, wherein R is selected from $CH_3$, $CH_2$(cyclo-$C_4H_7$), $CH_2$(cyclo-$C_3H_5$), $CH(CH_3)$(cyclo-$C_3H_5$), $CH_2CH_2CH_2F$, $CH_2CH_2OCH_3$, $CH_2CH_2OCF_3$, $CH_2CH(CH_3)_2$, $CH_2CH{=}CH_2$, *trans*-$CH_2CH{=}CHI$, $CH_2C{\equiv}CH$, benzyl, phenethyl, 3,4-dichlorophenethyl, 3-furanylmethyl, 2-furanylmethyl, 3-tetrahydrofuranylmethyl, and 2-tetrahydrofuranylmethyl.

11. The compound of claim 10, wherein said compound has the structure




or a pharmaceutically acceptable salt thereof.

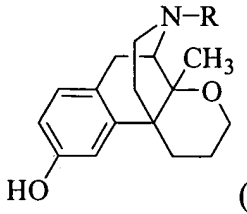
12. A compound of formula XI:



(XI)

or a pharmaceutically acceptable salt thereof, wherein R is selected from the group consisting of $CH_2CH_2CH_2F$, $CH_2CH_2OCH_3$, $CH_2CH_2OCF_3$, $CH_2CH(CH_3)_2$, *trans*-$CH_2CH$=CHI, $CH_2C\equiv CH$, benzyl, phenethyl, 3-furanylmethyl, 3-tetrahydrofuranylmethyl, and 3,4-dichlorophenethyl.

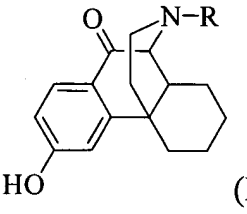
13. A compound of formula XII:



(XII)

or a pharmaceutically acceptable salt thereof, wherein R is selected from the group consisting of $CH_2CH_2CH_2F$, $CH_2CH_2OCH_3$, $CH_2CH_2OCF_3$, $CH_2CH(CH_3)_2$, *trans*-$CH_2CH$=CHI, benzyl, phenethyl, 3-furanylmethyl, 3-tetrahydrofuranylmethyl, and 3,4-dichlorophenethyl.

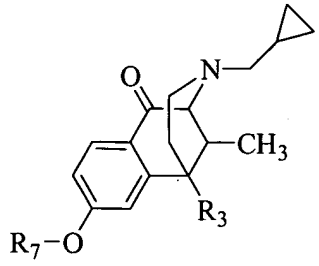
14. A compound of formula XIII:



(XIII)

or a pharmaceutically acceptable salt thereof, wherein R is selected from the group consisting of $CH_2$(cyclo-$C_4H_7$), $CH_2CH_2CH_2F$, $CH_2CH_2OCH_3$, $CH_2CH_2OCF_3$, $CH_2CH(CH_3)_2$, $CH_2CH$=$CH_2$, *trans*-$CH_2CH$=CHI, $CH_2C\equiv CH$, benzyl, phenethyl, 3-furanylmethyl, 3-tetrahydrofuranylmethyl, and 3,4-dichlorophenethyl.

15. A compound of formula XIV:



(XIV)

wherein $R_7$ is a fatty acid acyl and $R_3$ is selected from $CH_3$ or $CH_2CH_3$.

16. A pharmaceutical composition comprising an effective amount of a compound of any of claims 1 to 15 or a suitable salt thereof, together with a pharmaceutically acceptable carrier or diluent.

17. A method of treating pain in a patient in need thereof, said method comprising the step of administering to said patient a pharmaceutical composition of claim 16 in an amount sufficient to treat said pain.

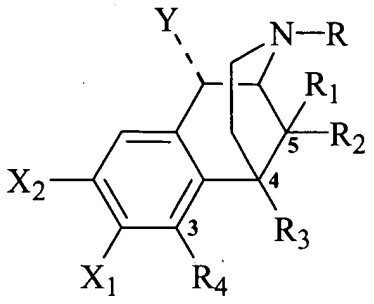
18. A method of treating a dopamine dysregulation disease in a patient in need thereof, said method comprising the step of administering to said patient a pharmaceutical composition of claim 16 in an amount sufficient to treat said disease.

19. The method of claim 18, wherein said disease is selected from the group consisting of schizophrenia, attention deficit hyperactivity disorder (ADHD), attention deficit hyperactivity disorder (ADD), Parkinson's disease, hyperprolactinemia, depression, and addiction.

20. The method of claim 19, wherein said addiction is selected from addiction to a psychostimulant, narcotic analgesic, alcohol, addictive alkaloid, or combinations thereof.

21. The method of claim 20, wherein said narcotic analgesic is cocaine.

22. A method of synthesizing a compound of claim 1, said method comprising the steps of combining thiocyanate and bromine with a compound of formula XV:




(XV)

wherein

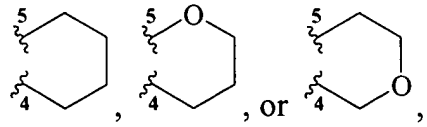
Y is H, oxo, or methyl;

one of $X_1$ and $X_2$ is $NH_2$ and one of $X_1$ and $X_2$ is H;

R is selected from H, $C_{1-7}$ alkyl, $C_{2-7}$ alkenyl, $C_{2-7}$ alkynyl, $C_{2-6}$ heterocyclyl, $C_{6-12}$ aryl, $C_{7-14}$ alkaryl, $C_{3-10}$ alkheterocyclyl, and $C_{1-7}$ heteroalkyl;

$R_1$ is selected from H or $CH_3$;

$R_4$ is H and $R_2$ and $R_3$ are each, independently, H, $C_{1-7}$ alkyl, or $R_2$ and $R_3$ combine to form a fused six-membered ring in which position 4 is connected to position 5 by




or $R_4$ combines with $R_2$ and $R_3$ to form a fused ring system connecting positions 3,

4, and 5 by